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(56) Documents cited

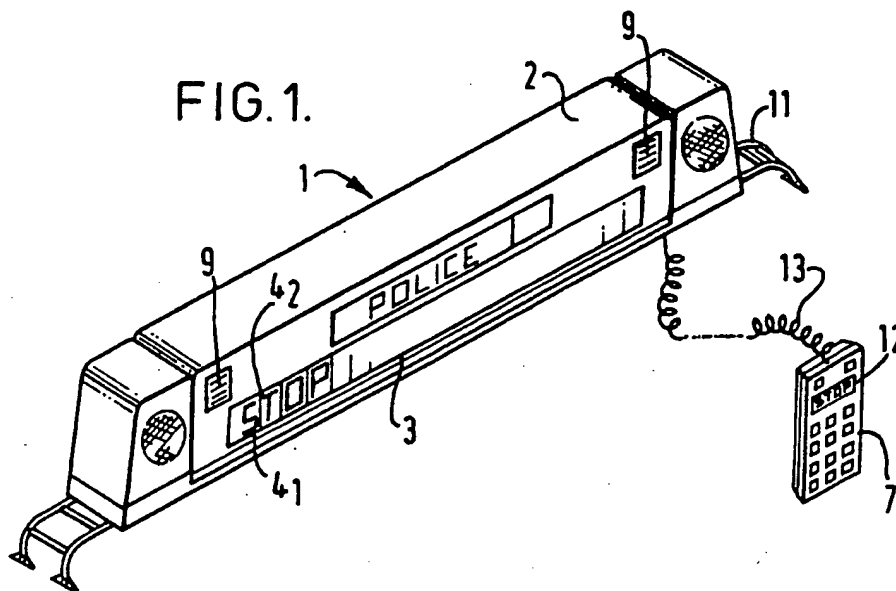
GB A 2163282	GB 0266283	US 4353063
GB A 2098374	GB 0223645	US 4325062
GB 1533455	EP A1 0131211	

(58) Field of search

G5C  
Selected US specifications from IPC sub-classes G09F  
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(54) A signalling system for a vehicle

(57) A signalling system for a vehicle, comprises: a first device (1) for mounting on or in a vehicle, the device including a plurality of light-emissive devices (4<sub>1</sub>, 4<sub>2</sub>, ...); first means, for actuating selected ones of the light-emissive devices to display a message; and second means, for supplying the first means with control information to actuate such selected ones of the light-emissive devices in accordance with input information characteristic of the message to be displayed. The light emissive devices may be lamps or LEDs. The main microprocessor may include a PROM for storing a plurality of messages. A hand-held switchboard unit may be provided for manual selection.



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FIG. 1.

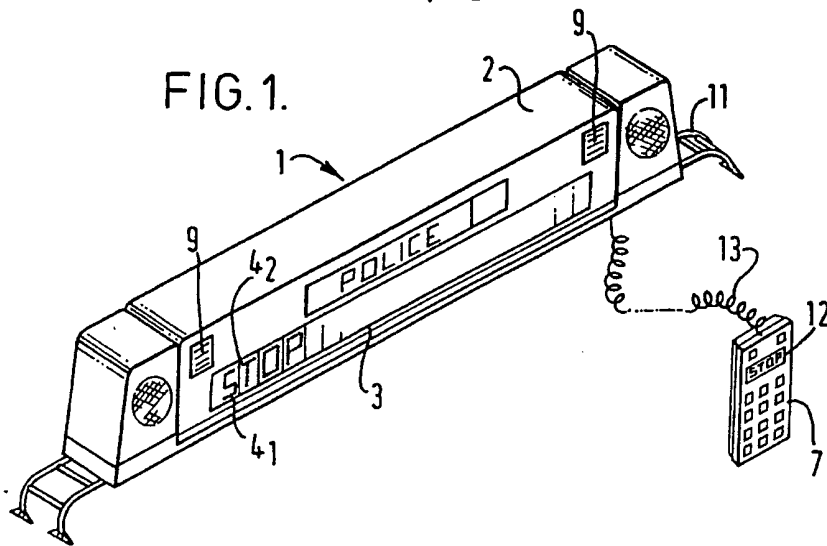
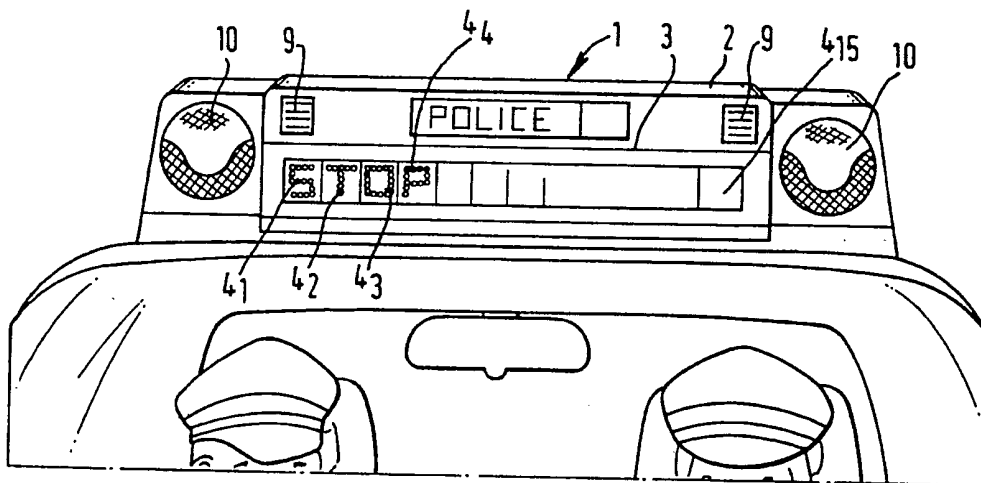
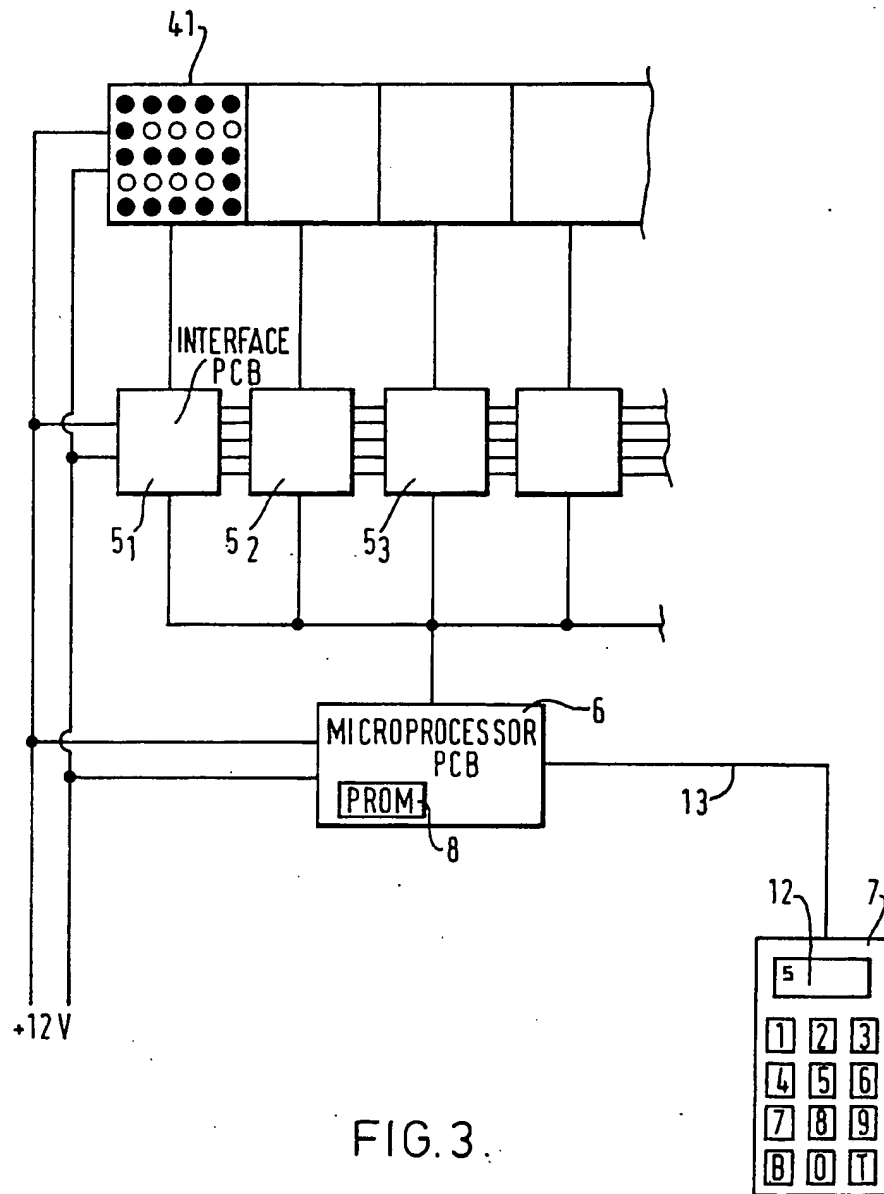


FIG. 2



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## SPECIFICATION

### A signalling system for a vehicle

- 5 According to the present invention there is provided a signalling system for a vehicle, comprising: a first device for mounting on or in a vehicle, the device including a plurality of light-emissive devices; first means, for actuating selected ones of the light-emissive devices to display a message; and second means, for supplying the first means with control information to actuate such selected ones of the light-emissive devices in accordance with input information characteristic of the message to be displayed.

The said first device could be for mounting on the roof of a vehicle.

- 20 The said light-emissive devices could be incandescent lamps.

- The said light-emissive devices could comprise arrays of such devices, the devices of each array being selectively actuatable for displaying an alpha-numeric character. In this case, the said first means could comprise a respective interface circuit for each array.

- 25 The said second means could comprise a microprocessor storing information for actuating selected ones of the light-emissive devices in dependence on different messages which may be displayed. In this case, the second means could further comprise a device (for example a push-button device), within or without the vehicle, for supplying the microprocessor with information characteristic of such different messages. Such a push-button device could be in the form of hand-held keyboard unit.

- 30 The present invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

*Figure 1* shows a signalling unit for mounting on the roof of a vehicle, and its hand-held operating unit;

- 45 *Figure 2* shows the signalling unit on the roof of a vehicle; and

*Figure 3* shows electronic circuitry of the signalling unit in block diagrammatic form for controlling the unit via the hand-held unit.

- 50 The system to be described includes two units, namely a 15 character signalling display unit for mounting on a vehicle roof and a remote hand-held keyboard control unit located within the vehicle.

- 55 a) *Display Unit*

- The display unit 1 comprises a housing 2 of polycarbonate type material which houses an aluminium lamp assembly panel 3. There are fifteen identical lamp arrays 4<sub>1</sub> to 4<sub>15</sub> attached to the panel 3, to provide for a fifteen character alpha-numeric display. Each array comprises a 5 row by 5 row matrix of 12 volt, 5 watt incandescent bulbs (25 lamps per character) retained by bayonet-type lamp holders

hardwired to respective ones of interface printed circuit boards 5<sub>1</sub> to 5<sub>15</sub>, mounted at the bases of the arrays.

- 70 Each interface printed circuit board (PCB) will decode character select instructions received from a main microprocessor based printed circuit board 6, mounted adjacent the display panel 3 in the unit 1.

- 75 The main microprocessor printed circuit board 6 will process all instructions from a hand-held keyboard unit 7 and also contains a programmable read only memory (PROM) integrated circuit 8 which contains all the pre-defined messages to be displayed. The PROM 8 is mounted in a 'zero insertion force' (ZIF) connector, thus enabling future 'change of message' requirements to be carried out by simple and easy removal/replacement of the PROM.

- 85 A lamp diffuser panel, red in colour, masks all bulbs and printed circuit boards, and provision for fitment of loudspeakers 9 for audible signalling is made within the housing 2 (which additionally or alternatively may include searchlights). Additional warning lamps 10 may be incorporated at opposite ends of the display panel.

- 90 The display unit 1 is powered from the vehicle's battery (heavy duty type) either by a permanently wired installation, or via a cigar lighter or similar device.

- 95 The display unit may be available in two versions, namely a permanently mounted unit attached to the vehicle roof or a removable unit attached to a 'clamp on' type roof-rack assembly 11 (see Fig. 1). Anti-vibration rubbers may be incorporated in both types of mounting arrangement.

- 105 b) *Keyboard Unit*

- The hand-held keyboard unit 7 has a liquid crystal display 12, providing verification of the main display message as displayed by the lamp arrays 4<sub>1</sub> to 4<sub>15</sub> and determined by the code for that message sent to the microprocessor board 6 by pressing a sequence of push-button switches of the unit 7. The keyboard unit 7 is connected to the display unit 1 by means of a telephone-type extending cable 13 fitted with a weatherproof connector assembly.

- 110 Ten of the push button switches are numbered 0 to 9 and allow selected ones of up to 100 different messages to be displayed. A printed message sheet defining each code and the related message may be attached to the rear of the keyboard unit.

- 115 A variable intensity switch for the lamps is incorporated into the keyboard unit 7 and also a switch for testing the lamps. Also, switches may be incorporated into the unit 7 for enabling the message to "roll" or flash/repeat.

- 120 The display unit 1 could alternatively be mounted on the boot or the rear parcel shelf of the vehicle for example.

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Instead of being incandescent lamps, the light-emissive devices could be light-emissive diodes for example.

#### 5 CLAIMS

1. A signalling system for a vehicle, comprising: a first device for mounting on or in a vehicle, the device including a plurality of light-emissive devices; first means, for actuating  
10 selected ones of the light-emissive devices to display a message; and second means, for supplying the first means with control information to actuate such selected ones of the light-emissive devices in accordance with input  
15 information characteristic of the message to be displayed.

2. A system according to claim 1, wherein the said first device is for mounting on the roof of a vehicle.

20 3. A system according to claim 1 or 2, wherein the said light-emissive devices are incandescent lamps.

4. A system according to any preceding claim, wherein the said light-emissive devices  
25 comprise arrays of such devices, the devices of each array being selectively actuable for displaying an alpha-numeric character.

5. A system according to claim 4, wherein the said first means comprises a respective  
30 interface circuit for each array.

6. A system according to any preceding claim, wherein the said second means comprises a microprocessor storing information for actuating selected ones of the light-emissive  
35 devices in dependence on different messages which may be displayed.

7. A system according to claim 6, wherein the second means further comprises a control device within or without the vehicle, for supplying the microprocessor with information  
40 characteristic of such different messages.

8. A system according to claim 7, wherein the said control device comprises a push-button device.

45 9. A system according to claim 8, wherein the push-button device comprises a hand-held keyboard unit.

10. A signalling system for a vehicle, substantially as herein described with reference to  
50 the accompanying drawings.

